

1. A simulation system configured to simulate a customer premises for a service provider, the simulation system comprising:

a communication media simulator system comprising:

an interface system configured to communicate with a service

5 provider communication link, and

a tunable simulator system configured to receive the service provider signal through the interface system, apply a first load to the service provider signal to simulate a length of communication media, and vary the first load to adjust the length of communication media simulated; and

10 a device simulator system configured to receive the service provider signal from the communication media simulator system and apply a second load to the service provider signal to simulate at least one customer premises device.

15 2. The simulation system of claim 1 wherein the communication media comprises a wire.

3. The simulation system of claim 1 further comprising an output system configured to:

20 determine simulation results from at least one of the communication media simulator system and the device simulator system; and transmit the simulation results to a user interface.

25 4. The simulation system of claim 1 wherein the tunable simulator system comprises a variable resistor.

5. The simulation system of claim 1 wherein the tunable simulator system comprises a variable inductor.

30 6. The simulation system of claim 1 wherein the tunable simulator system comprises a variable capacitor.

7. The simulation system of claim 1 further comprising:

a control system configured to automatically vary the first load to adjust the length of the communication media simulated.

5 8. The simulation system of claim 1 wherein the second load comprises:

a telephone load configured to simulate one of an on-hook condition or an off-hook condition of a telephone.

9. The simulation system of claim 1 wherein the second load comprises:

10 a bridge tap load configured to simulate an unterminated bridge tap.

10. The simulation system of claim 9 further comprising:

a bridge tap simulation system configured to vary the bridge tap load to simulate a variable length of wire connected to the bridge tap.

11. The simulation system of claim 10 further comprising:

a control system configured to automatically vary the second load to simulate the variable length of wire connected to the bridge tap.

12. The simulation system of claim 1 further comprising:

a switch system connected to the communication media simulator system that is configured to connect the communication media simulator system to other communication media simulator systems to simulate other conditions.

13. The simulation system of claim 1 wherein the service provider signal from the service provider comprises a signal for Digital Subscriber Line (DSL) service.

14. The simulation system of claim 1 further comprising:

an enclosure configured to house the communication media simulator system and the device simulator system.

15. A method of operating a simulation system to simulate a customer premises to a service provider, the method comprising:

receiving a service provider signal from the service provider;

applying a first load to the service provider signal to simulate a length of communication media;

tuning the first load to adjust the length of communication media simulated; and

applying a second load to the service provider signal to simulate at least one customer premises device.

16. The method of claim 15 wherein the communication media comprises a wire.

17. The method of claim 15 further comprising:

determining simulation results responsive to applying at least one of the first load and the second load; and

transmitting the simulation results to a user interface.

18. The method of claim 15 wherein tuning the first load comprises:

tuning a variable resistor.

19. The method of claim 15 wherein tuning the first load comprises:

tuning a variable inductor.

20. The method of claim 15 wherein tuning the first load comprises:

tuning a variable capacitor.

21. The method of claim 15 wherein varying the first load to adjust the length of communication media simulated further comprises:

varying the first load automatically using a control system.

22. The method of claim 15 wherein applying the second load further comprises:
applying a telephone load that simulates one of an on-hook condition or
an off-hook condition of a telephone.

5 23. The method of claim 15 wherein applying the second load further comprises:
applying a bridge tap load that simulates an unterminated bridge tap.

24. The method of claim 23 further comprising:
varying the bridge tap load to simulate a variable length of wire connected
10 to the bridge tap.

25. The method of claim 24 wherein varying the bridge tap load to simulate a
variable length of wire connected to the bridge tap comprises:
varying the second load automatically using a control system.

15 26. The method of claim 15 further comprising:
connecting other loads to the first load using a switching system to
simulate other conditions.

20 27. The method of claim 15 wherein the service provider signal from the service
provider comprises a signal for Digital Subscriber Line (DSL) service.